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Biodiversity Conservation of indigenous grasses to meet fodder deficit in Odisha

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Introduction

In Odisha, underfeeding of the livestock is the primary reason for decrease in production potential of the animals. On an average a desi cow of the state yields 0.214 kg of milk per day. The neglected calf management for generations also reduced the body weight of bullocks gradually. Low productivity of the indigenous and crossbred cows in the state is the absence of proper feeding material for them. The fodder availability in the state is ill matched to the livestock population. Out of the total greenfodder availability, contribution of cultivated green fodder is only 2.83% and majority (97.17 %) is available through grazing in permanent pasture, forest, cultivable wasteland and other fallow land. Due to heavy pressure on land resources, the possibility of increasing forage production by bringing more areas under fodder crops is remote and under such a situation, natural fodder resources on which majority of the livestock depends for grazing, bears a future for sustainable development. There are several herbs/grasses suitable for a variety of land situations, which provide feeding to about 98% of animals in rural Odisha. These grasses are naturally grown on field bunds, river/canal embankments, forest areas, hilly slopes and swampy areas, which are palatable and have a potential for improving the health and productivity level of livestock. The rural people without any harmful effects are so far feeding these grasses to the animals. These perennial grasses can be exploited either in their present productivity level or can be genetically manipulated for higher performance.

In Odisha, a good number of grasses/shrubs grown naturally, have not been explored properly and remained outside the target group of Forage Research and Extension workers. These grasses/shrubs have long been providing feeding to almost 98% of the total livestock of the state. But no sincere attempt has been made by research workers and planners to conserve the diversity of these resources and develop the characteristics. In many of the cases, these diversified genera are being overgrazed and ultimately get extinct. Out of several species, Para grass, Job's tear (Coix) and Broom grass can be exploited easily to compensate the green fodder deficit in Orissa. These species usually grows in problematic marginal/sub-marginal land and are being grazed by cattle for ages. In spite of their widespread distribution and lot of genetic diversity, their potentiality is yet to be exploited. Very less attempt has been made to study their habitat, soil and climatic requirements, flowering and seeding behaviour, propagation and genetic diversity. Conservation of these genetic resources and subsequent research and extension activities promoting such indigenous and under-utilized species will help in rehabilitating vast acreage of problematic soils for productive use.
In the present scenario, livestock is the major component to improve the per capita income of rural masses in Orissa. As majority (about 80%) of the farmers are small and marginal owning less than 2 ha of land, cattle / buffalo rearing need to be an important economic activity for sustainable development of rural areas. Animal wealth constitutes an integral part in our agrarian background and plays a vital role in rural economy. Livestock is the main source of proteins in the daily diets of rural masses as well plays a major role in providing the main source of traction power in a less mechanized state like Odisha. Similarly, utilization of dung for manure and fuel purpose is another important reason of livestock rearing. In spite of such a lucrative contribution, livestock resources more particularly the cattle population has always been neglected except in specialized dairy units. This is more so, because livestock production like agriculture is the endeavor of small and marginal farmers.

In Odisha, underfeeding of the livestock is the primary reason for decrease in production potential of the animals. On an average an indigenous cow of the state yield only 0.214 kg of milk per day. The neglected calf management for generations also reduced the body weight of bullocks gradually. Draught animals in Orissa, both bullocks and he-buffaloes are small in size, although the buffaloes are a shade larger than the bullocks, both in body size and body weight. Thus feeding is one of the essential prerequisites for achieving desired productivity level of animals. Low productivity of the indigenous and crossbred cows in the state is the absence of proper feeding material for them. Studies conducted so far

indicate that nearly 65% of the total expenditure on milk production is attributed to the feeding of animals, when both concentrates and green fodder were fed as mixed ration. Similarly, when the milk production depends on sole feeding of concentrates, the cost of feeding account for 82% of the total expenditure. In contrast, percentage of feeding cost goes down to a low of 40% when green forage is fed alone. Hence in a state like Orissa where more than 84% of the cattle population are indigenous cows, owned mainly by weaker sections of the community the only possibility of economically exploiting milch animals lies in feeding forage based ration. The economically backward cattle owners of the state can hardly afford expensive concentrates and also the productivity level will not match with the cost of feeding.

Out of the total greenfodder availability, contribution of cultivated green fodder is only 2.83% and majority (97.17%) is available through grazing in permanent pasture, forest, cultivable wasteland and other fallow land. Sample survey estimates conducted in 1996-97 also indicate that only 1.73% of the total livestock population are stall fed and rest 98.27% are either grazed or both grazed and stall fed. On an average an indigenous cow gets only 0.285kg and a crossbred cow 1.550kg green fodder in a day during milk period as against a requirement of 25 kg / day (anonymous, 1996-97).

Materials and Methods

A survey has been conducted by the AICRP on Forage Crops, OUAT, Bhubaneswar during 2009-11 in the randomly selected blocks of Odisha, representing all the ten agro-climatic zones of the state. The data so collected has been analyzed statistically and the species were identified by both the target group,extension officials and the researchers.

Results and Discussion

A good number of grasses/shrubs grown naturally have not been explored properly and remained outside the target group of Forage Research and Extension workers. These grasses/shrubs have long been providing feeding to almost 98% of the total livestock of the state. But no sincere attempt has been made by research workers, planners to conserve the diversity of these resources and develop the characteristics. In many of the cases, these diversified genera are being overgrazed and ultimately get extinct.

Out of several naturally grown grasses/shrubs in Orissa, three important grasses namely Para grass, job's tear (Coix) and broom grass can be exploited easily to compensate the green fodder deficit in coastal Orissa. These species usually grows in problematic marginal/sub-marginal land and are being grazed by cattle for ages. In spite of their widespread distribution and lot of genetic diversity, their potentiality is yet to be exploited. Very less attempt has been made to study their habitat, soil and climatic requirements, flowering and seeding behaviour, propagation and genetic diversity. Unless these are studied in detail, these grasses cannot be exploited either in their present form or in genetically manipulated form for economic gains. Conservation of these genetic resources and subsequent research and extension activities promoting such indigenous and under-utilized species will help in rehabilitating vast acreage of problematic soils for productive use. This will also compensate the fodder deficit in rural Orissa, where intensive cultivation of conventional fodder crops seems rarely possible. The below mentioned discussion indicate the potentials of such grasses/shrubs as reviewed by several research workers till date and identify the need for conservation of biodiversity for future use.

Conclusion

The above synthesis on Para grass, Job's tear and Broom grass pointed out its potential as suitable fodder for not only different agro climatic conditions of Odisha but also other places of India. These species need both insitu and exsitu conservation. There exists a lot of genetic diversity for most of its morpho agronomic traits, quality parameters and tolerance to different pests and diseases.

The increasing pressure of growing population and need of protein from animal source through milk and sustainable farming system approach in present day demands exploitation of new plant resource, under utilized plants and conservation of biodiversity. In this context the above mentioned species assumes special attention, as maximum genetic diversity exists in this grasses/shrub and its wild related types

References

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